

IN THE CLAIMS:

1. A system for manufacturing batteries, each battery having a plurality of positive electrode plates and a plurality of negative electrode plates layered alternately upon one another with intervening separators therebetween, thereby constituting an electrode plate group, and a positive and a negative current collector plates respectively welded to opposite side edges of the electrode plate group using electronic beams, said system including a welding apparatus for joining the current collector plates to the electrode plate group, said system comprising:

a plurality of preliminary vacuum chambers having different vacuum levels therein arranged adjacent each other such that the vacuum level is gradually increased from an upstream side to a downstream side;

a processing chamber having a highest level of vacuum therein arranged adjacent one of said plurality of preliminary vacuum chambers, in which an electronic beam irradiating device is arranged so that a welding operation is performed therein;

a post-processing chamber connected to the processing chamber, in which the electrode plate group, to which the current collector plates have been joined, is introduced before being taken out to the outside; and

means for transferring in succession the electrode plate group with the collector plates from a preliminary vacuum chamber having a lowest vacuum level to the post-processing chamber, through the plurality of another preliminary vacuum chambers having higher vacuum levels and the processing chamber.

2. The welding apparatus according to Claim 1, further comprising vacuum means including a first mechanical booster pump located in the preliminary vacuum chambers located on the upstream side and having lower vacuum levels; vacuum means including a first composite turbo molecular pump located in the preliminary vacuum chambers located on the downstream side and having higher vacuum levels; and vacuum means including a second mechanical booster pump and a second composite turbo molecular pump located in the post-processing chamber.

3. The welding apparatus according to Claim 2, wherein further comprising means for introducing one of dry air and gas into the preliminary vacuum chamber located on the most upstream side and the post-processing chamber.